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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/978,184	10/17/2001	Ronald E. Laird	3691-308	3917

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EXAMINER	
PIZIALI, ANDREW T	

ART UNIT	PAPER NUMBER
1775	18

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)
	09/978,184	LAIRD, RONALD E.
	Examiner	Art Unit
	Andrew T Piziali	1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-18,21,22,24-28,30-33 and 41-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-18,21,22,24-28,30-33 and 41-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite as a result of the term "dielectric layer(s)" in line 1 of claim 30. The use of parenthesis to contain a limitation in a claim is indefinite. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-6, 8-9, 11-13, 15-16, 18, 21-22, 24-28, 30-32, 41-46 and 48-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,962,115 to Zmelty et al. (hereinafter referred to as Zmelty) in view of USPN 6,398,925 to Arbab et al. (hereinafter referred to as Arbab).

Regarding claims 1, 3-6, 8-9, 11-13, 15-16, 18, 21-22, 24-28, 30-32, 41-46 and 48-58, Zmelty discloses a coated article comprising: substrate/oxide/ZnO_x/Ag/blocker/oxide/ZnO_x/Ag/blocker/oxide (column 3, lines 5-6). Zmelty discloses that the oxides may comprise titanium oxide (column 4, lines 9-11 and Tables I-III).

Zmelty also discloses that the blocker layers may be of a metal or suboxide such as Ag, Au, or Cu (column 1, lines 34-40).

Zmelty does not mention making one or more of the high refractive index antireflective oxide layers tin oxide and/or silicon nitride, but Arbab discloses that it is known in the art that a variety of high refractive index antireflective layers, such as titanium oxide, tin oxide and silicon nitride, may be utilized in an antireflective coated glass article (column 1, lines 31-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the oxide layers of Zmelty from any suitable high refractive index antireflective material, such as titanium oxide and/or silicon nitride and/or tin oxide, as taught by Arbab, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Zmelty does not specifically mention making the blocker layers with a Ni-Cr alloy, but Arbab discloses that it is known in the art that a variety of metals, such as Cu or a Ni-Cr alloy, may be utilized as the blocker layer material of a silver layer (column 1, lines 44-62). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the blocker layers of Zmelty from any suitable blocker material, such as a Ni-Cr alloy, as disclosed by Arbab, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. Arbab discloses that upon the deposition of the oxide layers the blocker layers become at least partially, if not completely, oxidized (column 1, line 63 through column 2, line 53).

Considering the substantially identical coated article of the cited prior art compared to applicants coated article, in terms of composition of the layers, layer thicknessess and method of

making the layers, it appears that the coated article of the cited prior art would possess the material properties claimed by the applicant. This reasoning holds for all subsequent rejections.

Regarding claims 3, 6 and 45, Zmelty discloses that the first oxide layer may be about 400A thick, the ZnO_x layers may be about 40A thick, the Ag layers may be about 60A thick, the last oxide layer may be about 380A thick, and the blocker layers may be about 15A thick (column 3, lines 8-16). Zmelty does not specifically mention a further oxide layer between the last blocker layer and the last oxide layer, but Arbab discloses that it is known in the art to include a protective overcoat layer, such as graded silicon oxynitride, to a coated glass article to protect the underlying layers (column 6, lines 43-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a protective layer to the coated article of Zmelty, as disclosed by Arbab, because the protective layer would protect the underlying layers.

Regarding claims 6, 8, 22, 32, 44, 54 and 58, Zmelty fails to specifically mention doping at least one zinc oxide layer with aluminum, but Arbab discloses that either zinc oxide or aluminum doped zinc oxide may be used as a silver contact layer to protect the silver layer and improve adhesion (column 5, lines 22-33, column 6, lines 18-37 and lines 42-68). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make any of the zinc oxide layers of Zmelty from any suitable material capable of protecting the silver layers and improving adhesion between layers, such as aluminum doped zinc oxide, as disclosed by Arbab, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

5. Claims 2, 10, 17, 33 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zmelty in view of Arbab as applied to claims 1, 3-6, 8-9, 11-13, 15-16, 18, 21-22, 24-28, 30-32, 41-46 and 48-58 above, and further in view of USPN 5,800,933 to Hartig et al. (hereinafter referred to as Hartig).

Regarding claims 2, 10, 17, 33 and 47, Zmelty discloses that the coated article may be used as window panes (column 1, lines 15-18), but fails to specifically mention using the article as an IG window unit. Hartig discloses that it is known in the art to use a solar control coated glass article in IG window units to provide insulting properties (column 1, lines 21-58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the coated article of Zmelty into an IG window unit, because the unit provides insulating properties desirable in many architectural applications.

Regarding claim 17, Zmelty fails to specifically mention doping at least one zinc oxide layer with aluminum, but Arbab discloses that either zinc oxide or aluminum doped zinc oxide may be used to contact a silver layer to protect the silver layer and improve adhesion (column 5, lines 22-33, column 6, lines 18-37 and lines 42-68). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make any of the zinc oxide layers of Zmelty from any suitable material capable of protecting the silver layers and improving adhesion between layers, such as aluminum doped zinc oxide, as disclosed by Arbab, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zmelty in view of Arbab as applied to claims 1, 3-6, 8-9, 11-13, 15-16, 18, 21-22, 24-28, 30-32, 41-46 and 48-58

above, and further in view of USPN 6,277,480 to Veerasamy et al. (hereinafter referred to as Veerasamy).

Zmelty does not mention providing a final coat of DLC on the coated article, but Veerasamy discloses that it is known to coat vehicle windows/windshields or architectural glass with DLC to provide scratch resistance and improve durability. It would have been obvious to one having ordinary skill in the art at the time the invention was made to coat the article of Zmelty with a DLC layer, because it would provide scratch resistance and improve durability.

Response to Arguments

7. Applicant's arguments filed 9/22/2003 have been fully considered but they are not persuasive.

The applicant asserts that the prior art fails to teach or suggest the unexpected results (visible transmission of the coated article is increased, sheet resistance and/or emissivity is reduced, overall solar performance is improved, and acceptable durability) associated with using zinc oxide for the lower contact layer(s) while using nickel chrome oxide for the upper contact layer(s). The examiner asserts that the applicant has failed to demonstrate unexpected results from such a combination of layers.

In paragraph 0021, of the current specification, the applicant discloses that zinc oxide layer(s) enables visible transmission of the coated article to be increased, enables the sheet resistance and/or emissivity to be reduced, and enables the overall solar performance to be improved. In paragraph 0022, of the current specification, the applicant discloses that nickel chrome oxide layer(s) are highly durable. It is not clear how it is unexpected that the coated

article, by comprising both a zinc oxide layer(s) and a nickel chrome layer(s), possesses the combined properties of zinc oxide and nickel chrome oxide.

Conclusion

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

atp

ANDREW T. PIZIALI
PATENT EXAMINER

DEBORAH JONES
SUPERVISORY PATENT EXAMINER